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09/824,064	04/03/2001	Eva Ingegerd Ejerhed	003300-769	9262

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EXAMINER

HARPER, V PAUL

ART UNIT	PAPER NUMBER
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2654

12

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PS

Office Action Summary

Application No.

09/824,064

Applicant(s)

EJERHED, EVA INGEGERD

Examiner

V. Paul Harper

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- ☐ Interview Summary (PTO-413) Paper No(s). _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al. (U.S. Patent No. 5,895,466), hereinafter referred to as Goldberg, in view of Julliard (U.S. Patent 6,202,064).

Regarding claim 1, Goldberg discloses an automated natural language understanding customer service system. Goldberg's system includes the method of generating natural language keys for a database by analyzing a natural language query with natural language techniques including syntactic, semantic, and vocabulary analyses (col. 2, lines 60-64), but Goldberg does not specifically teach "wherein said natural language text database has been analyzed with respect to syntactic functions of constituents, lexical meaning of word tokens, and clause boundaries". However, the examiner contends that this concept was well known in the art, as taught by Julliard.

In the same field of endeavor, Julliard discloses a linguistic search system where a text database is analyzed using natural language analysis techniques including a part-of speech tagging (col. 2, Ins. 3-10, Ins. 21-24, Fig. 2, col. 3, ln. 7 through col. 4, ln. 15).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg by specifically providing the natural

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language analyses of the text database (or corpus), as taught by Julliard, for the purpose of simplifying the database processing.

In addition, Goldberg teaches analyzing a received natural language query by performing both vocabulary analysis and syntactic/semantic analysis on the query (col. 2, lines 40-47), which corresponds to “wherein said natural language question comprises a question clause, comprising the steps of: analyzing a computer readable representation of said question clause with respect to syntactic functions of its constituents and the lexical meaning of its word tokens.” Goldberg further teaches the generation a set of “natural language keys and parameters” that can be used to query a database (col. 2, lines 45-51), which corresponds to “defining, in response to the analysis step, a set of conditions for a ... database to constitute an answer to said question clause”.

But Goldberg does not specifically teach “... a set of conditions for a clause in said *natural language text* database ..., said conditions comprising a condition stipulating that, for a clause in said natural language text database to constitute an answer to said questions clause, at least one of the constituents of said question clause should have a corresponding constituent in said clause having the same syntactic function and an equivalent lexical meaning; [and] identifying clauses in said natural language text database that satisfy said conditions”. (Italics added) However, the examiner contends that this concept was well known in the art, as taught by Julliard.

Julliard further discloses that a natural language query is linguistically analyzed (determining both words and corresponding part-of-speech) and compared to a similarly

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analyzed text database to determine if there is a match, and if there is a match, then locating of the matching text (col. 2, Ins. 3-24, and col. 4, line 9 through col. 5, line 16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg by specifically providing the natural language analyses of both the question and text database, as taught by Julliard, for the purpose of increased flexibility during natural language question answering.

Furthermore, Goldberg teaches sending the answers to the customer (Fig. 2 **190**), which corresponds to "returning answers to said question clause by means of the identified clauses that matches said conditions."

Regarding claim 12, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1); in addition, Goldberg teaches that the answer is found and sent to the customer (Fig. 2 **160 190**, col. 4, lines 4-6), but Goldberg does not specifically teach "extracting from said natural language text database portions of text comprising clauses satisfying said conditions." However, the examiner contends that this concept was well known in the art, as taught by Julliard.

Julliard further teaches that the match text is located and highlighted (col. 2, Ins. 21-24, Fig. 2, **s6**).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard by specifically providing text locating and isolating, as taught by Julliard (and sent as taught by Goldberg), for the purpose of making the answer obvious.

Claim 13 is a system claim with limitations that correspond to the limitations given above in claim 1 and is rejected for the same reasons given in the rejection of claim 1.

Regarding claims 14 and 15, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1). In addition, Goldberg teaches that the natural language computer is a general purpose computer **30** that executes natural language software (col. 2, Ins. 36-40), which corresponds to "A computer readable medium having computer executable instructions for a general-purpose computer to perform the steps recited in the claim 1, and a computer program comprising computer executable instructions for performing the steps recited in the claim 1."

2. Claims 2-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg in view of Julliard and further in view of Hedin et al. (U.S. Patent 5,386,556), hereinafter referred to as Hedin.

Regarding claim 2, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1); in addition, Goldberg in view of Julliard teach that a syntactic and semantic analysis is performed on the query (Goldberg, col. 2, lines 40-45), but Goldberg in view of Julliard does not specifically teach "a verb condition stipulating that a clause constitutes an answer to said question clause if a lexically headed constituent having the syntactic function of main verb of said question clause has a corresponding lexically headed constituent in said clause bearing the syntactic function of main verb and having an equivalent lexical meaning." However, the examiner contends that this concept was well known in the art, as taught by Hedin.

Hedin discloses a natural language analyzing apparatus and method that parses a query and includes a representation for a verb (Fig. 3A, col. 8, lines 35-48).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard by specifically providing a parse of the query that includes the verb, as taught by Hedin, for the purpose of indicating an action.

Regarding claim 3, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1); in addition, Goldberg in view of Julliard teaches that a syntactic and semantic analysis is performed on the query (Goldberg, col. 2, lines 40-45), but Goldberg in view of Julliard do not specifically teach "a subject condition stipulating that a clause constitutes an answer to said question clause if a lexically headed constituent having the syntactic function of subject of said question clause has a corresponding lexically headed constituent in said clause having the syntactic function of subject and having an equivalent lexical meaning." However, the examiner contends that this concept was well known in the art, as taught by Hedin.

Hedin discloses a natural language analyzing apparatus and method that parses a query and includes a representation for a subject (Fig. 2B, col. 5, lines 32-44).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard by specifically providing a parse of the query that includes a subject condition, as taught by Hedin, for the purpose of indicating entities and relationships.

Regarding claim 4, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1); in addition, Goldberg in view of Julliard teach that a syntactic and semantic analysis is performed on the query (Goldberg, col. 2, lines 40-45), but Goldberg in view of Julliard do not specifically teach "an object condition stipulating that a clause constitutes an answer to said question clause if a lexically headed constituent having the syntactic function of object of said question clause has a corresponding lexically headed constituent in said clause having the syntactic function of object and having an equivalent lexical meaning." However, the examiner contends that this concept was well known in the art, as taught by Hedin.

Hedin discloses a natural language analyzing apparatus and method that parses a query and includes a representation for an object (Fig. 2B, col. 5, lines 32-44).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard by specifically providing a parse of the query that includes an object condition, as taught by Hedin, for the purpose of indicating entities and relationships.

Regarding claim 5, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1); in addition, Goldberg in view of Julliard teach that a syntactic and semantic analysis is performed on the query (Goldberg, col. 2, lines 40-45), but Goldberg in view of Julliard do not specifically teach "a manner adverb condition stipulating that a clause constitutes an answer to said question clause if a lexically headed constituent having the syntactic function of manner adverb of said question clause has a corresponding lexically headed constituent in said clause having

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the syntactic function of manner adverb and having an equivalent lexical meaning.”

However, the examiner contends that this concept was well known in the art, as taught by Hedin.

Hedin discloses a natural language analyzing apparatus and method that parses a query and includes a representation for a verbal construct (col. 8, lines 43-48), which would inherently include manner adverbs.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard by specifically providing a parse of the query that includes manner adverbs, as taught by Hedin, for the purpose of indicating the manner in which an action is performed.

Regarding claim 6, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1); in addition, Goldberg in view of Julliard teach that a syntactic and semantic analysis is performed on the query (Goldberg, col. 2, lines 40-45), but Goldberg in view of Julliard do not specifically teach “a place adverb condition stipulating that a clause constitutes an answer to said question clause if a lexically headed constituent having the syntactic function of place adverb of said question clause has a corresponding lexically headed constituent in said clause having the syntactic function of place adverb and having an equivalent lexical meaning.” However, the examiner contends that this concept was well known in the art, as taught by Hedin.

Hedin discloses a natural language analyzing apparatus and method that parses a query and includes a representation for a verbal construct (col. 8, lines 43-48), which would inherently include place adverbs.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard by specifically providing a parse of the query that includes place adverbs, as taught by Hedin, for the purpose of indicating the direction in which an action is taking place.

Regarding claim 7, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1); in addition, Goldberg in view of Julliard teach that a syntactic and semantic analysis is performed on the query (Goldberg, col. 2, lines 40-45), but Goldberg in view of Julliard do not specifically teach "a time adverb condition stipulating that a clause constitutes an answer to said question clause if a lexically headed constituent having the syntactic function of time adverb of said question clause has a corresponding lexically headed constituent in said clause having the syntactic function of time adverb and having an equivalent lexical meaning." However, the examiner contends that this concept was well known in the art, as taught by Hedin.

Hedin discloses a natural language analyzing apparatus and method that parses a query and includes a representation for a verbal construct (col. 8, lines 43-48), which would inherently include time adverbs.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard by specifically providing a parse of the query that includes time adverbs, as taught by Hedin, for the purpose of indicating the time that an action is taking place.

Regarding claim 8, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1); in addition, Goldberg in view of Julliard teach that a

syntactic and semantic analysis is performed on the query (col. 2, lines 40-45), but Goldberg in view of Julliard do not specifically teach “a causal adverb condition stipulating that a clause constitutes an answer to said question clause if a lexically headed constituent having the syntactic function of causal adverb of said question clause has a corresponding lexically headed constituent in said clause having the syntactic function of causal adverb and having an equivalent lexical meaning.” However, the examiner contends that this concept was well known in the art, as taught by Hedin.

Hedin discloses a natural language analyzing apparatus and method that parses a query and includes a representation for a verbal construct (col. 8, lines 43-48), which would inherently include causal adverbs.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard by specifically providing a parse of the query that includes causal adverbs, as taught by Hedin, for the purpose of indicating the reason that an action is taking place.

Regarding claims 9 and 10, Goldberg in view of Julliard teach everything claimed, as applied above (see claim 1); in addition, Goldberg in view of Julliard teach that a syntactic and semantic analysis is performed on the query (Goldberg, col. 2, lines 40-45), but Goldberg in view of Julliard do not specifically teach “wherein there is an interrogative pronoun in said question clause, further comprising the step of: determining the syntactic function of the queried constituent of said question clause in response to the analysis step and said interrogative pronoun; and wherein the syntactic

function of the queried constituent of said question clause is determined as the syntactic function of said interrogative pronoun.” However, the examiner contends that this concept was well known in the art, as taught by Hedin.

Hedin discloses a natural language analyzing apparatus and method that parses a query and includes a representation for an interrogative pronoun (Fig. 2B, 3A, 3B, col. 8, lines 34-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard by specifically providing a parse of the query that includes an interrogative pronouns, as taught by Hedin, since questions commonly begin with interrogative pronouns.

3. Claim 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg in view of Julliard, Hedin, and further in view of Voorhees (“Using WordNet for Text Retrieval,” in *WordNet an Electronic Lexical Database*, by Christiane Fellbaum, pp. 295-301).

Regarding claim 11, Goldberg in view of Julliard and Hedin teach everything claimed, as applied above (see claim 9), but Goldberg in view of Julliard and Hedin do not specifically teach “wherein the analysis of lexical meaning of word tokens comprises an analysis of the broad semantic class of each word token of said natural language text database, and wherein the broad semantic class of the queried constituent is determined in response to the interrogative pronoun.” However, the examiner contends that this concept was well known in the art, as taught by Voorhees.

Voorhees teaches the use of WordNet for text retrieval where a query expansion can occur by selecting additional words to express a queries concept (p. 295, §12.4, ¶1-2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldberg in view of Julliard and Hedin by specifically providing a query expansion, as taught by Voorhees, so as not to miss relevant answers.

Response to Arguments

4. Applicant's arguments filed 10/16/03 have been fully considered but they are not persuasive.

5. Applicant asserts on page 16:

Thus, *Julliard* merely discloses a retrievable system in which a query is entered and tagged with regular parts of speech and a regular expression is formed using grammatical rules. An information text database is then searched in *Julliard* for matches between the regular expression and a portion of the text database. Thus, although grammatical rules are used in *Julliard* to determined what kind of additional words, repressions or phrases may be present in a match phrase, nothing in *Julliard* shows, teaches or suggests defining any condition with respect to the syntactic function of constituents for the matching of the search expression with the text to be searched. Specifically, nothing in *Julliard* shows, teaches or suggests a condition stipulating that, for a clause in the natural language text database to constitute an answer to a question clause, at least one of the constituents of the question clause should have a corresponding constituent in the clause having the same syntactic function and an equivalent lexical meaning as claimed in claims 1 and 13. Rather, *Julliard* merely discloses entering a query, tagging the words of the query with parts of speech, forming a regular expression using grammatical rules and then searching

for matches in an information text database between the regular expression and a portion of the text database. (underline added)

Julliard teaches that the regular expression (representation of the query) is matched against the tagged version of the corpus (col. 4, lines 17-21), where the part of speech of each word is determined (i.e., its syntactic function) in both the query and the corpus, and the process of matching implies the matching of the syntactic function and the words (i.e., lexical meaning). See figure 2, and note the representations include words and parts of speech (items 50, 51 and 52), and in particular, note the matching step, s5.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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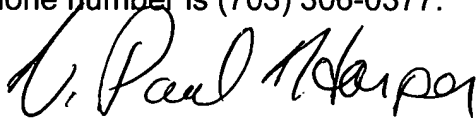
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. V. Paul Harper whose telephone number is (703) 305-4197. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (703) 305-9645. The fax phone number for the Technology Center 2600 is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service office whose telephone number is (703) 306-0377.



VPH/vph
November 14, 2003



RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER